

USERS MANUAL

# AGRICULTURAL DRYER



JOONGANG PRECISION CO., LTD.

## PREFACE

- Thank you very much for your purchase of the dryer made by Joongang Precision Co., Ltd.
- . For safer and more efficient use of the dryer, please read carefully this operation manual before use.
- . Please refer to the operation manual when necessary, by keeping it at a convenient place.
- . If installation and assembly of the dryer are completed, please listen carefully to the explanation of dryer operation and try out the machine personally.
- . Product life varies as the place for use and environment, but you can extend the life of machine under correct usage.

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For Safety

To prevent the accident arising out of misuse of the dryer and to protect the safety and property damage of users, directions are shown by pictures for easier understanding.

Please read carefully the contents in the pictures and use correctly.

Directions for Safety

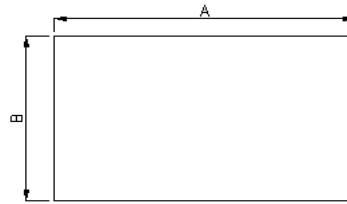
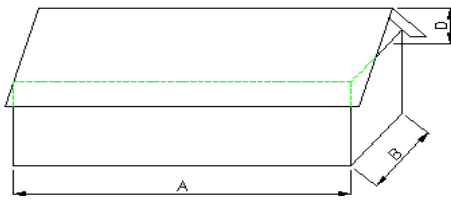
. Directions are divided into 4 kinds including Danger, Warning, Watch, and Important, and their meanings are as follows.

<b>◆ Danger</b>	This symbol indicates significantly dangerous situation resulting in death or severe injury, if instructions not followed.
<b>● Warning</b>	This symbol indicates dangerous situation resulting in death or severe injury, if instructions not followed.
<b>▣ Watch</b>	This symbol indicates dangerous situation resulting in severe injury or property damage, if instructions not followed.
<b>★ Important</b>	This symbol indicates instructions for efficient use of the dryer.

. Be sure to keep this operation manual at the place available by users, after reading it.

# 1. Dryer Figure





## 2. Dryer Installation Standards

※D(Roof Height) : Install the dryer to the height for easier drainage of rain.

Contents Standards	A(Width)	B(Length)	C(Building Height)	Directions to select an installation site
TJDA-025	1,828 mm	1,828 mm	2,438 mm	<ul style="list-style-type: none"> <li>• near power source</li> <li>• convenient for work control</li> <li>• with leveled floor</li> <li>• where a roof can be installed</li> <li>• foundation work by cement</li> </ul>

## 3. Standard Specification

### ●Electric Heater Type Dryer

Model	Spec (kg)	Size(mm) L X W X H	Q'ty of Case	Fan		heater	Capacity (kg) / time	Dry Time (hr)	Remark
				Spec	Blow type	Rated Output (kw)			
TJDA-025	120	1250X1020X1845	12 ea	220V×0.55 kW	turbo type	4.4 kW	60-120	30-40	

※Internal structural change, specification change, and special order production are acceptable.

※Product specification and performances may be subject to change without prior notice.

#### 4. Checking Points before Installation and Operation

##### 1) Installation Site

###### ★ Important

◦ For installation of the dryer, please select a site in accordance with the following conditions in view of safety, maintenance, and efficiency.

- ① Install it at the place protected from rain and the sun, and where ventilated well. If you are urged to install it in the closed building, set a ventilating opening to discharge the exhaust humidity out of the building.
- ② Select a place where input and discharge of the dried object are convenient.
- ③ Maintain the hardening of concrete basement horizontally for about 3 days before the installation of the dryer.
- ④ Select the surrounding place of the dryer with less dirt, less humidity, and cleanliness.

###### ■ Watch

◦ Set up the power source of dryer near the circuit breaker.  
◦ Remove inflammables near the dryer to prevent fire or safety accident, and maintain good arrangement and cleanliness.

##### 2) Power checking and Confirmation

###### ● Warning

◦ Be sure to install the circuit breaker and the earth for the

protection of the dryer and the prevention of electric shock.

① Install the circuit breaker near the dryer.

**TJDA-025 : 220V 60HZ 1 $\phi$  50A**

② Be sure to earth for safety.

③ Check the voltage in use.

④ Check if the lamp is on after supplying the power. (at the time of turning on the power switch)

If the lamp is not on, check if power input wires are correctly connected with the corresponding terminal numbers and inspect a circuit breaker, fuses in sequence.

⑤ Minimum wire sizes are as follows. **TJDA-025 : 1 $\phi$  6 mm<sup>2</sup> X 2C**

⑥ When you install the dryer or connect wiring again, be sure to check the rotating direction of the blower. (arrow direction)

● **Warning**

◦ When you inspect or repair the dryer, be sure to turn off the power switch.

Electric accident may cause injury or death by electric shock.

◦ Never allow your body to be contacted by electric conductors, as input/output terminals are open to electric shock.

⑦ Before dry work for the new machine, be sure to close the humidity controller, raise the indoor temperature to 60°C~70°C for empty dry for 20 minutes, completely open the humidity controller for ventilation, and then do dry

work for

5. Operation, Control, and Usage

the dried

object brought in.

1. DIGITAL AUTOMATIC CONTROL

1). POWER SWITCH

2). CURRENT TEMP. : Temperature of the dry room inside is displayed.

3). SET TEMP. : Sets the temperature using an UP/DOWN button.

(0 - 99°C)

4). SET TIME : Sets the time using an UP/DOWN button.(0 - 99 Hr)

\*(in case of continuous use: % is displayed)

5). FERMENTATION : It is used when fermentation function is required.

Temperature and time can be set for use. Upon operation the lamp is on.

(Default value: Temperature: 38°C, Time: 48 hours)

6). Blower operation lamp : Upon the blower operation, the lamp is on.

7). Heater operation lamp : Upon the heater operation, the lamp is on.

(When the current temperature reaches at the set temperature, then the heater turns out. If the current temperature passes below the set temperature, the heater turns on again.)

8). AUTO SETTING : It is used for changing the temperature and the time by step (1-3 steps) during the course of dry work. When you push a AUTO SETTING Button at the stop, 1-step becomes blinking for setting the temperature and the time.

If you wait (about 10 seconds), it automatically turns over to 2-step blinking.

At this time, if you set the temperature and the time, and wait, it turns over to 3-step blinking. Again if you set the temperature and the time, and push the RUN button, operation starts, temperature and time change automatically. In the meantime, if you want to change the humidity controller by step, you should change it manually.

2. Usage of the dryer

1). Put the dried object onto the tray, fill the space from the upper section of the dryer.

2). Adjust the humidity controller(damper) to the necessary step. (You can adjust the humidity controller during the dry work when necessary)

3). Turn on the power switch.

4). Set the temperature and the time, and push the operation button. (As the setting methods for the temperature, the dry time, and the humidity controller(damper) are different from the dried objects, set the optimum conditions after initial, several dry works.)

◎ **Warning**

◦ Use a rated capacity for fuse.

(If replaced with steel wire or copper, fire, injury, or death case may happen owing to uninterrupted power source.

◎ **Warning**

◦ Be sure to install a circuit breaker.

◦ For inspection or cleaning of the control box, do the work in the power(circuit breaker) switch-off state for the dryer.

◦ Be sure to earth the control box.

※ If you do not keep the above directions, short circuits or other electric accident may bring about injury or death cases

■ **Watch**

◦ Do not allow others except the authorized for dryer to operate.

Poor operation may cause damages on the dried object and troubles.

■ **Watch**

◦ Before operation, remove foreign materials(dirt, offensive odor, cloth scrap, etc.) not to allow them going into the machine room of the dryer.

◦ Inflow of foreign materials may cause quality deterioration of the dried objects and fire as well.

■ **Watch**



◦ Do not set the temperature over 80°C.

Malfunctions may happen, leading to quality deterioration of the dried objects.

**★ Important**

◦ Stopping by power switch-off during the operation may cause life reduction and troubles of the blower motors.

**★ Important**

**6. Maintenance, Storage, Trouble Indication, and Safe Usage**

◦ Emergency measures for troubles are referred to page 9 of this operation manual. After emergency measures, please call our regional distributors or our head office.  
◦ When you call us, please inform your address, name, contact point, purchasing year, and troubles.

1) Maintenance Method for the Machine(Emergency Measures)

**※ The following measures are for guidelines for A/S engineers. Users should contact nearby distributors or our head office for repair.**

No.	Troubles	Causes	Measures
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1	When a blow motor does not rotate	<ol style="list-style-type: none"> <li>1. No current flows in the power line.</li> <li>2. Motor failure</li> <li>3. Defective power switch (Defective circuit breaker)</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect from the power in order, and correct defective parts.</li> <li>2. Replace the failed motor.</li> <li>3. Replace the defective circuit breaker.</li> </ol>
2	The machine does not work at all.	<ol style="list-style-type: none"> <li>1. No functioning of power switch</li> <li>2. No power supply</li> </ol>	<ol style="list-style-type: none"> <li>1. Check the ON-OFF of power switch. If disconnection, replace it.</li> <li>2. Inspect the power</li> </ol>
7	Abnormal high temperature. Lamp is on.	<ol style="list-style-type: none"> <li>1. The temperature of the dry room is higher than the setting temperature by 8~9°C.</li> </ol>	<ol style="list-style-type: none"> <li>1. No failure. Warning lamp will be out if temperature difference is lower than 8~9°C.</li> </ol>

## 2) Storage Method for the Machine

- Inspect any troubles and take proper measures.
- For the part of which painting is removed during the use, apply partial painting for storage.
- Do not allow the control box or the dry box to be damaged by the sun. If you leave them in humidity, please note that failures or life reduction may happen.

### ★ Important

- Poor storage of the machine may cause its life reduction and performance deterioration as well.
- For storage in a dry season, turn off the power switch and close the door of the control box.

## 3) Safe Usage of the Machine

### ★ Important

- Before use of the machine, please read carefully the operation manual to understand correct usage and cautions,

- For inspection, be sure to turn off the power switch.
- Do not operate in the state without safety devices.

(Otherwise, dry failure, safety accident, or fire may happen.)

- Do not apply excessive force to each part for operation.

- Check at all times any release of fixing bolts at contact codes or wiring terminals.

(Release of fixing bolts may cause fire owing to contact failure and wiring burnt-out.)

- Turn off all switches under severe lightening, and stop the operation of the machine until the cease of lightening.
- Pay attention to the machine not to be filled with water or humidity.
- Be careful of the machine not to be touched by direct rays.
- Although the blower inside the machine uses a motor with heat-resistant coil and heat-resistant bearings, the blower life may be shortened owing to the residual heat from combustion by sudden stop. Thus, after the completion of dry, be sure to operate the blower only for 5~10 minutes under no connection with heater power, and then stop the operation.
- Check if a temperature sensor is not put in or taken out caused by carelessness during the machine installation or use.
- Check at all times if any rumbling noise from the motor after the start or at the stop of the machine.

(Bearing replacement is required if such noise happens.)

- For a side blowing type dryer, if you put the dried objects more than specified, uniform dry cannot be achieved. Thus, you need to put the dried objects in accordance with the machine capacity. (See the standard specification)

#### ● **Warning**

- |   |
|---|
| <ul style="list-style-type: none"><li>◦ For safe use, place the fire extinguisher near the dryer.</li><li>◦ Do not leave your seat during the use of the dryer.</li></ul> <p>(If any trouble happens and any immediate measure is not taken, physical and personal damages may result.)</p> |
|---|

#### 4) Safe Devices

The following safe devices are attached for safety during the use, which should never be removed freely by the user. Also, please check if they are operating normally.

Item	Usage	Problems if removed	Inspection and Measures
Earth rod Earth wire	Earthing	Electric shock	◦ At much humid places. bury it into the ground in depth of 30 cm over.
Overheat protector	heater stop in overheat	Heater does not work.	◦ Check if the wiring of overheat protector is taken out. if the contact of contacting point is defective, replace it.

### ■ Watch

◦ Be careful not to allow your body or cloth to be contacted by the rotating parts of the machine.

### ★ Important

◦ We are not responsible for the damage of the machine, injury, or the damage of the dried objects, if such are caused by non-observance of the above instructions.

### 7. Dry Control

■ Usage  
of a side

blowing type dryer

. A side blowing type dryer is a type where hot wind is coming out from both left and right sides, and uniform dry is achieved without replacing a dry box.

. If the dried amount is less than that of the applied dry boxes, put the dry boxes from the upper section to the lower section.

. If you put more amount than specified, uniform dry is not achieved by the choked ventilation opening at the side. Put the recommended amount densely and flat by spreading.

#### 1) Dry of red pepper

. Open the humidity controller to the 3-step, set the temperature to 56°C for dry.

. If 70~80% of dry is achieved, solar dry is allowed by taking out the red pepper.

. The above dry method should be the standards, However, dry method may vary as the amount, and the kind of the dried object, the soil, cropping period, etc. Therefore, users should be careful of the dry work suitable for the dried object at the initial 1~2 times.

Dry control requires to apply the temperature and humidity proper to the state of dried red pepper. Standard dry temperature is shown in 『8. Reference Temperature Table』, which should be used for reference only. In particular, duration time varies with the kind of red pepper and producing places.

- Harvest in the less water state after the disappearance of morning dew.
- Harvesting the proper amount fit for one dry room is effective.
- Excessive input of the dried object into the dry box would lead to insufficient dry, longer dry time, and deteriorated quality of the dried object.
- Put the red pepper into the box by spreading uniformly and without height difference, If vacancy, wind is driving into the less packed place.
- It is effective for the cropped thick red pepper to be contained in the lower boxes, while for the thin red pepper in the upper boxes.
- For ignition, close the humidity controller, and set the automatic temperature control device to 65℃. If a setting temperature is obtained after about 1 hour, maintain the same temperature. At this time, perspiration of the red pepper continues and water excretion proceeds. Soft state when being touched by hands is effective.
- In general, after 2~4 hours at 65℃, the red pepper will be nearly dried. If completely dried, turn off the burner, and fully open the humidity controller to completely remove the humidity in the dry room.

Humidity removal should be finished within a short time. If finished, immediately raise the temperature.

- If 70~80% of dry are achieved, sun dry may be done after taking out them from the dry room.
- The above dry method should be the standards, However, dry method may vary as the kind of the dried object, the soil, the amount, etc. Therefore, users should be careful of the dry work suitable for the dried object at the initial 1~2 times.

## 2) Dry of Jujube

Dry control requires to apply the proper temperature according to the state of dried jujube. Standard dry temperatures are shown as below. But, they have to be used for reference only. since they vary with cropping time and the kind of jujube

- Before putting the jujube into the machine, do the prior washing and the dehydration
- Put the same size into the boxes after selection. Putting the jujube stacked in 2 pieces is preferred.
- After selection of the jujube, put the large one into the lower section and the small one into the upper section.
- For dry work, close the humidity controller and start the machine. Operate the machine to be reached at 47°C in 1 hour dry time by increasing the temperature steadily 5°C by 5°C.
- Maintain 47°C continuously for 8~10 hours to stabilize the colour and gloss.
- For colour and gloss stabilization, if 89~90% of wrinkles are achieved, move to the dry work.

- For the dry work, raise the temperature by 2~3°C and adjust the humidity controller at No. 1~2. Then, total dry work will be finished within 35 hours.
- If you interchange diagonally the upper and lower boxes each other in 5~6 hours after the start of dry work, dry time will be shortened and fuel will be reduced. (except the side blowing type)
- The above dry method should be the standards, However, dry method may vary as the kind of the dried object, the soil, the amount period, etc. Therefore, users should be careful of the dry work suitable for the dried object at the initial times.

8. Reference Dry

Dry

Temperature Table for Red Pepper

Dry Temperature Table for Red Pepper									
70°C									
60								56°C	
50									
40									
30									
temp.°C	4	5	10	15	20	25	30	35	..... 48
time									
humidity controller	Open the 3 step.								
Dry method by electric heater									
▶ Open the 3 step of humidity controller. Set the temperature at 56°C.									

2) Dry Temperature Table for Jujube

(°C)			
60	57°C		
50	47°C	51°C	
40			
30			
20			
10			
temp. time	5 10 15 20 25 30		
humidity controller	closed	1 step	2 step

※ Remarks

Please note that dry time and fuel consumption vary more or less with the climate, quantity, and temperature control.

